

## LETTERS TO THE EDITOR

**Pigtail Catheter for Extraction of Pacemaker Lead**

Madigan et al. (1) draw attention to the difficulty frequently experienced in manually extracting chronically implanted tined urethane ventricular endocardial pacemaker leads. We share the experience that with vigorous manual traction, the wire elements often uncoil and the lead body stretches. This results in too little traction being transmitted to the electrode tip for successful detachment from the endocardial surface.

In many circumstances, there appears to be little hazard in leaving these leads in place, trimmed and capped. However, in the presence of an infected pacemaker system, it is mandatory to remove all potentially infected hardware (2). In the past, this has sometimes required thoracotomy with cardiopulmonary bypass for access to the ventricular portion of incarcerated leads. Although various retrieval devices have been used to capture intravascular foreign bodies, they are often of limited use in this particular situation because of the attachment of the pacemaker electrode to the ventricle and the need for firm traction to remove it.

An alternative approach is suggested by the following case. A 67 year old man with symptomatic sick sinus syndrome had a Medtronic Byrel 5993SX DVI generator with a transvenous atrial 6957J and a ventricular 6971 lead placed via the left subclavian vein. Eleven months later, he presented with an infected pacemaker system manifested as persistent fever, *Serratia marcescens* bacteremia and septic pulmonary emboli. At the time of pacemaker system removal, the atrial lead was easily unscrewed and withdrawn. Despite vigorous traction, the tined unipolar ventricular lead could not be detached from the ventricular apex. Therefore, an 8 French Cordis pigtail left ventriculography catheter was introduced through the right femoral vein using the Seldinger technique. The pigtail loop was hooked over the ventricular lead as it passed through the right atrium and the catheter repeatedly rotated so that the lead body was progressively entwined onto the catheter shaft. By pulling on the pigtail catheter, firm traction could be applied close to the lead tip, with the result that the lead was quite easily dislodged and withdrawn down to the iliac vein level where it was captured with a Dotter retriever.

Use of the pigtail catheter has previously been reported (3) for retrieval of a loose fragment of a transvenous pacemaker lead. Judicious application of the approach described here might extend its use to some patients with incarcerated leads whose only alternative is thoracotomy.

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**“Atrial Systolic Notch” and “Early Diastolic Notch” on the Interventricular Septal Echogram in Constrictive Pericarditis**

In 1978, we described (1) an echocardiographic sign (“early septal diastolic notch”) that has proved useful in the diagnosis of constrictive pericarditis, although it is not specific for this condition. Recently, Tei et al. (2) reported an “atrial systolic notch” on the interventricular septal echogram that may be an additional useful sign for differentiating constrictive pericarditis from restrictive cardiomyopathy. To establish the relative diagnostic value of these two echocardiographic signs, we analyzed the echocardiograms of 25 patients with constrictive pericarditis, 22 patients with idiopathic hemochromatosis (3), 14 patients with amyloidosis (4), 10 patients with idiopathic restrictive cardiomyopathy, 4 patients with hypereosinophilic syndrome and 1 patient with endomyocardial fibrosis (5).

An “early diastolic notch” was observed in 23 (92%) of 25 patients with constrictive pericarditis and in 2 with idiopathic restrictive cardiomyopathy, but it was not present in patients with amyloidosis, cardiac hemochromatosis or endomyocardial fibrosis (although in this latter condition, Acquatella et al. [6] noted 1 patient with early diastolic notch). In contrast, an abnormal atrial systolic notch was observed in only 5 (38%) of the 13 patients with constrictive pericarditis in sinus rhythm; when the whole group was considered, only 20% (5 of 25) of these patients showed the sign since 12 of them had atrial fibrillation. Moreover, we found an atrial systolic notch in one patient with hypereosinophilic syndrome, two patients with idiopathic hemochromatosis and one patient with cardiac amyloidosis. We also observed a very similar end-diastolic septal notch in individual patients with cardiac tamponade, chronic cor pulmonale, isolated left bundle branch block, pulmonary valve stenosis and absence of organic heart disease.

In summary, we think that neither early diastolic notch nor atrial systolic notch is specific for constrictive pericarditis, but in our experience early diastolic notch is more frequent, with the additional and significant advantage that it is not dependent on the presence of sinus rhythm. This fact is of clinical importance because atrial fibrillation is present in 30 to 50% of cases of constrictive pericarditis.

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